REMARKS

Claims 1 - 8 has been canceled and new claims 9 -12 have been added. Claims 9 - 12 are pending in the present application. The rejections set forth in the Office Action are respectfully traversed below.

Rejections under 35 USC §112 Second Paragraph

Claims 4-8 were rejected under 35 USC §112 second paragraph. These rejections are moot since claims 4-8 were canceled.

Rejections under 35 USC §§102 and 103

Claims 1-2 were rejected under 35 USC §102 over **Algots et al.** (USP 6,192,064). Claims 3-8 were rejected under 35 USC §102 or §103 over **Algots**. These rejections are moot since claims 1-8 were canceled. However, new claims 9-12 incorporate some of the subject matter previously recited in canceled claims 1-8. It is submitted that nothing in the prior art teaches or suggests all the features recited in new claims 9-12.

For instance, new claim 9 recites "a laser controller controlling driving of the piezoelectric element unit to move the optical component to set a center wavelength of the laser light at a target wavelength, and controlling subsequent driving of the piezoelectric element unit or the pulse motor unit to maintain the center wavelength at the target wavelength."

New claim 10 recites "a laser controller controlling driving of the piezoelectric element unit to move the optical component to set a center wavelength of the laser light at a target wavelength, and controlling subsequent driving of the piezoelectric element unit to return to a neutral position, wherein during the return of the piezoelectric element unit to the neutral position, the laser controller further controls driving of the pulse motor unit to compensate for a positional change of the optical component caused by the return of the piezoelectric element unit to the neutral position to maintain the center wavelength at the target wavelength."

New claim 11 recites "a laser controller controlling, during oscillation stoppage of the laser light, driving of the pulse motor unit to move the optical component to a position that would set a center wavelength of the laser light close to a target wavelength, and after oscillation of the laser light resumes, controlling subsequent driving of the piezoelectric element unit to set the center wavelength of the laser light at the target wavelength."

New claim 12 recites "a laser controller controlling, during oscillation stoppage of the laser light, driving of the pulse motor unit to move the optical component to a position that would set a center wavelength of the laser light close to a target wavelength, and after oscillation of the laser light resumes, controlling subsequent driving of the piezoelectric element unit to set the center wavelength of the laser light at the target wavelength and then to return to a neutral position, wherein during the return of the piezoelectric element unit to the neutral position, the laser controller further controls driving of the pulse motor unit to compensate for a positional change of the optical

component caused by the return of the piezoelectric element unit to the neutral position to maintain the center wavelength at the target wavelength."

Algots describes a mirror 14C being moved using a stepper motor 15 and a piezoelectric element 14B. The sections entitled "Wavelength Control" and "Finer Wavelength Control" in columns 6 and 7 of **Algots** describe a computer controller 24/24A that is programmed to control both the stepper motor 15 and the piezoelectric actuator 14B. However, **Algots** does not describe any specific sequence of control as recited in the present claimed invention when controlling the oscillation wavelength to a target wavelength (e.g., in which order these actuators are used). **Algots** also describes the resolution of the stepper motor 15 and the piezoelectric element 14B. However, **Algots** does not describe any specific control sequence that takes full advantage of the quick response of the piezoelectric element versus the longer strokes of the stepper motor.

According to the new claim 9 mentioned above, since the optical component is moved ***first*** by the piezoelectric element unit which is quick in response, the center wavelength rapidly reaches the target wavelength. And, because the laser controller controls the ***subsequent*** driving of the pulse motor unit whose stroke is long, it is possible to cope with a slow and greater change of the center wavelength. As mentioned above, the prior art does not teach or suggest the specific claimed control sequence. For at least these reasons, the present claimed invention of claim 9 patentably distinguishes over the prior art.

In rejecting the claims, the Office Action stated that the manner in which the laser controller controls the previously claimed first and second drive mechanisms may be "inherent" in the device

disclosed in **Algots**, given "identical structure" (see, e.g., page 4 of the Office Action). However, on the requirements of alleging inherency, MPEP § 2112 describes the examiner's burden to provide evidence *clearly* showing that the missing descriptive matter is *necessarily* present in the thing described in the reference. The fact that a certain feature *may* be present in the prior art is not sufficient to establish the inherency of that characteristic. Here, no evidence nor rationale was provided in the Office Action to establish the Examiner's burden of proving inherency. On the contrary, the discussion above shows that **Algots** does not even suggest the alleged inherent feature.

It should also be noted that functional limitations, such as the control features of the claimed laser controller, must be evaluated and considered, just like any other limitation of the claim. As stated in MPEP §2173.05(g), "a functional limitation is often used in association with an element, ingredient, or step of a process to define a particular capability or purpose that is served by the recited element, ingredient or step." As discussed above, the specific control sequence of driving the piezoelectric element unit and the pulse motor unit, as recited in new claims 9-12 identify specific capabilities of the laser controller that are not taught or suggested by the prior art.

Moreover, **Algots** does not address the problem described in the present application wherein "a piezoelectric element unit becomes degraded by continuous application of a high voltage for a long period of time." Indeed, while **Algots** recognizes the use of high voltage signals to drive the piezoelectric motors (column 7, lines 20-22), **Algots** does not at all describe or address any degradation of the piezoelectric units subjected to the high voltages over a long period of time. According to the new claims 10 and 12 mentioned above, after driving a piezoelectric element unit

(using a high voltage) to set the center wavelength at a target wavelength, the piezoelectric element unit is returned to a neutral position at which a low-voltage is applied, to avoid degrading the piezoelectric units.

Besides failing to address the prevention of degradation to the piezoelectric unit, **Algots** also does not teach or suggest any further feature to address any effects resulting from returning the piezoelectric unit to a neutral position. In particular, the present claimed invention also identifies that a positional change of the optical component may be caused by returning the piezoelectric element unit to the neutral position. The present claimed invention of claims 10 and 12 compensates for such a positional change by driving the pulse motor during the return of the piezoelectric element unit to its neutral position, thus making it possible for the center wavelength to reach the target wavelength rapidly, as well as preventing the degradation of the piezoelectric element unit. For at least these reasons, the present claimed invention patentably distinguishes over the prior art.

In addition, **Algots** does not describe the driving of the actuators during the stoppage of oscillation. According to new claims 11 and 12 mentioned above, during the stoppage of oscillation, the pulse motor unit is driven to move the optical component to a position that would set a center wavelength of the laser light close to a target wavelength. After resuming oscillation, the quick-response piezoelectric element unit is driven to quickly move the optical component, from the "rough" position set by the pulse motor driving, to the position where the center wavelength is set at the target wavelength. Accordingly, setting the center wavelength at the target wavelength can

be achieved rapidly. For at least these further reasons, the present claimed invention patentably distinguishes over the prior art.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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